THE METROPOLITAN WATER DISTRICT
OF SOUTHERN CALIFORNIA

Office of the General Manager

December 2, 2013

CERTIFIED MAIL
RETURN RECEIPT REQUESTED

Mr. Steven Armann, Manager
RCRA Corrective Action Office
U.S. Environmental Protection Agency
Region 9
75 Hawthorne Street
San Francisco, CA 94105

Request for TSCA Risk-Based Disposal Approval
For the Removal of PCB-Containing Caulk
Robert B. Diemer Treatment Plant, Basins 1 through 8

Dear Mr. Armann:

The Metropolitan Water District of Southern California (Metropolitan) is requesting a Risk-Based Disposal Approval from the U.S. Environmental Protection Agency (EPA) under 40 CFR 761.61(c). This approval is for the removal of Polychlorinated Biphenyl (PCB) containing caulking material, in contact with drinking water, from treatment plant basins (Nos. 1-8) at Metropolitan's Robert B. Diemer Water Treatment Plant (Diemer) in Yorba Linda, California.

I INTRODUCTION

Metropolitan is committed to removing PCB-containing caulk whenever it is discovered in our system. Metropolitan has instituted a practice of testing for PCBs when conducting any projects involving caulk removal or repair projects, and has had a long-standing practice of monitoring for PCBs in water as part of our operation. The PCB regulations, however, do not provide a means of determining what constitutes "complete removal" when removing caulk from a porous material (e.g. concrete) under conditions such as ours. This approval, if granted, would provide Metropolitan with measurement-based caulk removal criteria to be used for the upcoming Diemer project.

Metropolitan previously requested and received approval for a similar caulk removal and replacement project at our Joseph Jensen Water Treatment Plant (Jensen) Basin No. 3 in 2008[1]. The Diemer application and associated work plan is based largely on the Jensen application, and relies on the same proof-of-concept laboratory testing developed for the Jensen project.

[1] Letter from Nancy Lindsay, USEPA to Bobbi Becker, Metropolitan dated April 28, 2008, entitled "*April 16, 2008 Request for TSCA Risk-Based Disposal Approval under 40 CFR 761.61(c) for Jensen Treatment Plant – EPA Conditional Approval for Basin No. 3*".

As with Jensen, Metropolitan is submitting this Risk-Based Disposal Approval option under subpart 761.61(c) of the PCB regulations because that regulatory approach best fits the situation at Diemer, and provides the maximum assurance that residual caulk removal is accomplished, thus eliminating potential risk to human health and the environment.

Before beginning development of this application, we met with you in July of 2012 to solicit your thoughts and suggestions for our path forward. In particular, we shared your desire that this approval represent a repeatable approach for any of Metropolitan's future basin abatement projects. We both recognized the importance of providing uninterrupted drinking water service to Southern California, and agreed on the need to develop a protocol that minimizes downtime and allows us to accurately schedule outages and return–to-service dates.

In July we also agreed that our studies, laboratory research, and testing conducted at Jensen were sufficient, and that we could build on our success at Jensen in developing this application. That being said, we endeavor to improve the implementation mechanics and recently conducted some field trials using vacuum shrouded, dustless concrete scabbler and scarifer, the results of which are reflected in this proposal.

II BACKGROUND

Metropolitan is a comprised of 26 member agencies including cities and water districts that supplies more than one-half of the drinking water used by approximately 18 million people in the 5,200 square-mile coastal plain of Southern California. Metropolitan imports water from the Colorado River and Northern California. To provide this service, Metropolitan operates an extensive system of water conveyances, reservoirs, and water treatment plants. As the largest drinking water provider in the nation, it is Metropolitan's mandate to meet the highest water quality standards. The continued, uninterrupted operation of our facilities affected by the requested Risk-Based Disposal Approval is critical in fulfilling this mandate and in meeting the drinking water demands of the Southern California communities we serve.

As a public water agency, we are extremely sensitive to public health issues, as you are, and have taken a very conservative approach to managing the PCB caulk issue. We believe our approach to PCB-containing caulk removal and replacement, as demonstrated at Jensen, is protective of human health, while allowing us to address any future discoveries quickly without interrupting the regional water supply.

The Diemer Plant was placed into service in 1963. The original equipment in the existing eight basins is aging and needs to be rehabilitated to maintain water treatment reliability. Prior to beginning an upcoming repair project at Diemer Basin No. 4, Metropolitan sampled the construction joint caulk and expansion joint caulk and found that it contained PCBs exceeding 50 mg/kg. **Attachment A** shows Metropolitan's distribution system, an aeriel view of the Diemer Plant, several photographs of Diemer Basin No. 4, and overview of its basin joints containing original caulk. This discovery was reported to EPA, and has been the subject of numerous communications with EPA since then.

The potential existence of PCB containing caulk can only be confirmed when basins are drained and the caulk is actually tested due to the age and variability of construction materials used within and between basins. Diemer Basin No. 4 was drained and sampled in 2008 and is currently not in service. Metropolitan staff will ask its Board of Directors to authorize (middle of 2014) a rehabilitation project addressing all 8 basins at the Diemer facility. The Diemer facility employs seven other basins in addition to Basin No. 4. Mitigation of PCBs in all basins will be a part of the overall project scope for the Board's consideration.

III CAULK REMOVAL PROJECT OVERVIEW

Metropolitan proposes a refined process to address PCB-containing caulk at each Diemer basin as PCB is discovered. The process, based generally on the Jensen Basin No. 3 Approval granted by the EPA, consists of the following general steps:

1. **Caulk Removal**: Remove any PCB-containing caulk, and clean the concrete joint using Alconox.

2. **Concrete Removal**: (First pass of concrete removal) Remove 1/8 inch of concrete from the surface for 3 inch on either side of the joint and 1/8 inch of concrete from the interior of the joint to a depth up to 2 inch on either side of the joint.

3. **Confirmation Sampling**: Perform wipe sampling[2] (see Section VI) in and adjacent to the joint for residual PCB contamination. Sample results will be compared to a clean-up objective of 10 ug/100 cm^2 (see Section IV). As necessary an additional 1/8 inch (second pass of concrete removal) will be removed to meet the clean-up objective. A maximum ¼ inch removal is set for structural /integrity reasons. Only joints specifically tested clean will be excluded from the second pass of concrete removal.

4. **Concrete Encapsulation**: If residual PCB concentration remains greater than the clean-up objective and the maximum allowable concrete removal depth has been reached,

[2] Bulk concrete sampling may also be conducted at the discretion of Metropolitan, and compared with the 22 mg/kg clean-up objective for Jensen.

Metropolitan may elect to encapsulate the joint and adjoining concrete in lieu of further concrete removal (see Section VII).

5. **New Caulk Installation**: Install new non-PCB containing caulk in the joint.

6. **Ongoing Monitoring and Recordkeeping**: If all confirmation results indicate meeting the clean-up objective, Metropolitan will implement Section VIII "On-going Monitoring of PCB in Treated Water". If however, residual PCB fails to meet the clean-up objective on or adjacent to the joint concrete and the concrete needs to be encapsulated, effluent water will be monitored regularly, and the joints will be inspected periodically (see Section VII).

IV DISCUSSION OF PCB CLEAN-UP OBJECTIVES

Metropolitan proposes a clean-up objective of 10 ug/100 cm^2 as measured by wipe sampling. This objective has been well established in 40 CFR of Part 761 and is the most conservative standard in the PCB regulation of high occupancy areas. Further, it has been in use for years and was the primary clean-up objective used in Jensen Basin No. 3. In the interest of project flexibility, Metropolitan also proposes to use, at Metropolitan's discretion, the bulk 22 mg/kg clean-up objective as an option. This objective is based upon the leachability study Risk Assessment performed for Jensen[3] (same/similar concrete and caulk). In the study, solid core concrete samples containing up to 22 mg/kg PCB residual caulk showed no measurable PCB leaching. Nonetheless, as discussed in the section below, the wipe sample method has been shown to be more conservative than the bulk sample method based on comparing the ratio of clean-up objective to analytical results in the same locations.

V DISCUSSION OF WIPE SAMPLING VS BULK SAMPLING

Based on testing performed at Jensen and Diemer, we believe that wipe sampling is a valid indicator of PCB availability, and prefer to avoid core sampling for confirmation sampling. Diemer is an older facility than Jensen, and the basin walls are thinner. Our engineers are concerned that coring in or adjacent to the joints will compromise the structure and eventually result in leaks.

At your staff's request, on March 26, 2013 we compiled and submitted a study (see **Attachment B**) of data collected at Diemer and Jensen to confirm the validity of wipe sampling versus bulk sampling. This study convincingly demonstrated that wipe sampling was both representative and conservative for measuring PCBs in our smooth-surface concrete sedimentation basins. The wipe versus bulk sampling comparisons are summarized below.

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[3] Risk Assessment (extraction testing of PCB from concrete joints) excerpt from Letter from Bobbi Becker, Metropolitan to Arlene Kabei dated April 16, 2008 (See Attachment D).

A. Sample Locations and Results

Comparisons were presented for both walls and floor joints samples as follows:

1) Jensen Basin No. 3 – wall sample locations CJ1 and EJ1
2) Diemer Basin No. 4 – floor sample locations SN1 and SN2

Concrete Bulk: Below is a summary of the bulk concrete samples analytical results for the above sample locations. These results are compared to bulk concrete samples cleanup objective of 22 mg/kg.

1) Jensen Basin No. 3 – two *wall* locations done, bulk concrete ranged from:
   0.34 to 2.2 mg/kg – CJ1
   0.27 to 0.54 mg/kg – EJ1
   Average Ratio of Results/Objective = 0.04

2) Diemer Basin No. 4 – two *floor* locations done, bulk concrete range from:
   0.34 to 8.1 mg/kg – SN1
   0.35 to 0.36 mg/kg – SN2
   Average Ratio of Results/Objective = 0.104

Concrete Wipe Samples Results: Below are the wipe concrete samples analytical results for the same locations described above. These results are compared to the concrete wipe samples cleanup objective of 10 ug/100 cm^2.

1) Jensen Basin No. 3 – two *wall* locations done, wipe concrete range from:
   1.7 to 8.5 ug/100 cm^2 – CJ1
   3.1 to 5.7 ug/100 cm^2 – EJ1
   Average Ratio of Results/Objective = 0.475

2) Diemer Basin No. 4 – two *floor* locations done, wipe concrete range from:
   730 to 3,000 ug/100 cm^2 – SN1
   110 to 570 ug/100 cm^2 – SN2
   Average Ratio of Results/Objective = 110

B. Data Analysis: Concrete Wipe versus Bulk Concrete

Wall wipe samples at Jensen Basin No. 3: Wipe samples are shown to be conservative based on a comparison of the average ratio of wipe results over the wipe cleanup objective (= 0.475) versus the average ratio of bulk concrete results over the bulk objective (= 0.04).

Floor wipe samples at Diemer: Again, wipes are shown to be conservative based on comparing the average ratio of wipe results over the wipe cleanup objective (=110) versus the average ratio for bulk concrete results over the bulk objective (= 0.104).

C. Conclusion:
The study demonstrates that bulk concrete PCB samples results were a small fraction of the bulk cleanup objective whereas the PCB wipe samples represent substantial fraction or even exceeded the cleanup objective. Therefore, wipes are a conservative method for measuring PCB in Metropolitan concrete basins.

Metropolitan recognizes the importance of ensuring that any residual PCB remaining in the concrete after caulk removal does not present an unreasonable risk to human health. Our challenge remains to develop an approach to confirmation sampling that is fast enough to meet the project construction schedule and hence system demands, while still providing sufficient data to show that health risk-based removal standards have been met.

Caulk replacement and repair projects are frequently performed under very tight time constraints, often allowing less than a week to perform removal, testing, and replacement before a basin must go back into service in order to deliver needed drinking water to our member agencies. Using wipe sampling in lieu of core sampling will allow us to meet our internal schedules while still being protective of human health. Nonetheless, due to the vagaries of onsite conditions, Metropolitan prefers to retain the 22 mg/kg clean-up objective as an option to allow field flexibility.

VI PROPOSED RISK-BASED PCB REMOVAL SAMPLING STANDARDS

Metropolitan proposes that the following sampling protocol be used for caulk removal confirmation before beginning new caulk installation:

Once the caulk has been removed and the concrete surface has been prepared for placement of new caulk, wipe samples will be collected from the affected concrete joints and adjacent area (within 3 inches) using a 100 cm^2 template overlaying the joint and surrounding concrete, and extracted and analyzed per EPA Test Methods 3500C/3545 (Pressurized Fluid extraction) and 8082, respectively.

Proposed sampling frequency is based on 40 CFR 761 Subpart O, as negotiated and applied to our Jensen facility. Specifically the Jensen protocol called for: 1) Walls: one wall sample on every other joint and 2) Floor: one sample on every floor joint for a sampling frequency of one sample for every 200 linear feet of caulk joint. We conservatively applied this same strategy to Diemer basins and propose the following:

1) 40 floor samples at Diemer versus 30 floor samples at Jensen. This equates to one sample every 167 feet and

2) 27 wall samples at Diemer versus 14 wall samples at Jensen for a frequency of one sample every 30 feet.

3) As such, overall (wall and floor) sampling frequency would be one sample every 112 feet. (versus one sample for every 200 linear feet at Jensen)

VII ENCAPSULATION

If PCB abatement is not successful after two passes of concrete removal (see Section III), Metropolitan proposes encapsulation of the joint at the failed locations. Metropolitan's coating staff is renowned for their expertise and experience in coating water contact facilities. They propose a multi-layered, spray coating system rather than using brushes, as we believe brush painting could mobilize any PCB remaining on the concrete surface and thereby dissolve it in the coating.

Metropolitan proposes to conduct visual inspection of the coating to ensure that wear or degradation of the top layer does not occur. Inspection will consist of visually inspecting the top coating layer for signs of cracking, delaminating or evidence of the contrasting bottom layer color showing through. Any positive inspection results will be followed by additional inspection and repair, if necessary.

Metropolitan also proposes to take steps to properly record the information in a manner that will alert future repair workers of its location before beginning work. We believe that repair workers are the only personnel that would potentially be exposed to residual PCB. Metropolitan proposes to record the location of the concrete containing residual PCB in its internal record of hazardous material locations, and to include a check of this record as part of our standard project planning. Because this process is a company requirement, notification of residual PCB presence will happen as part of routine operations. As such, no PCB labels would be required on the basins themselves.

All materials of construction used in the basin will meet NSF 61 standards for materials in contact with drinking water.

VIII ONGOING MONITORING OF PCB IN TREATED WATER

Metropolitan proposes to monitor the effectiveness of the abatement by periodically testing the basin water effluent for PCBs and comparing the results against the established drinking water maximum contaminant level (MCL) for PCBs. This procedure, as outlined below, was also followed at Jensen Basin No. 3.

1) After completion of PCB removal, the basin will be refilled and the water allowed to stand for 72 hours, then sampled and analyzed for PCBs.

2) Effluent monitoring will then be performed quarterly near the discharge end of each affected basin for the first year after the abatement is implemented (following the conditions of our normal operating permit).

The immobility of PCBs from basin caulk has been confirmed repeatedly through historical testing of each of Metropolitan's treatment plant effluents, which is required under our operating permit. Annual monitoring for PCBs, pesticides, herbicides, and semi-volatiles at Metropolitan's source waters and five treatment plant effluents began in 1985. No effluent testing has ever found PCBs present above the minimum reporting level of 0.10 ug/L or the drinking water MCL of 0.5 ug/L (see **Attachment C** for recent copy of water quality results).

IX CONCLUSION

Metropolitan respectfully requests that the EPA grant a Risk-Based Disposal Approval to use the proposed caulk removal and confirmation sampling protocols for the 8 basins at the Robert B. Diemer Water Treatment Plant.

Metropolitan is confident that the proposed approach to residual PCB caulk removal and monitoring against the MCL is protective of human health. We also believe that both this approach as well as the proposed confirmation sampling protocol are consistent with the intent of the PCB regulations. Metropolitan operates under strict drinking water quality regulations and is constantly vigilant regarding the quality and safety of water provided to our customers. The drinking water that we supply to our approximately18 million customers meets the highest standards and is consistently in compliance with the regulatory drinking water quality requirements, including PCB levels.

Please feel free to contact me at the number below or John Clark at (213) 217-5504 with any questions. We are available to meet with you in your offices at any time to discuss this proposal.

Very truly yours,

Bart Koch
Safety and Environmental Services Section Manager
(213) 217-5646

JEC:sgl
S:EHS corres/John Clark/R-13-111.docx

Enclosures: Attachment A - Metropolitan's distribution system, aerial view of the Diemer Plant, and photos of Diemer Basin No. 4
Attachment B - Data collected at Diemer and Jensen to confirm the validity of wipe sampling versus bulk
Attachment C – Recent copy of water quality results
Attachment D – Risk Assessment (extraction testing of PCB from concrete joints) excerpt from Letter from Bobbi Becker, Metropolitan to Arlene Kabei dated April 16, 2008

bcc: J. E. Clark
J. C. Teraoka
S. G. Lai
M. F. Burch
G. T. Lai-Bluml

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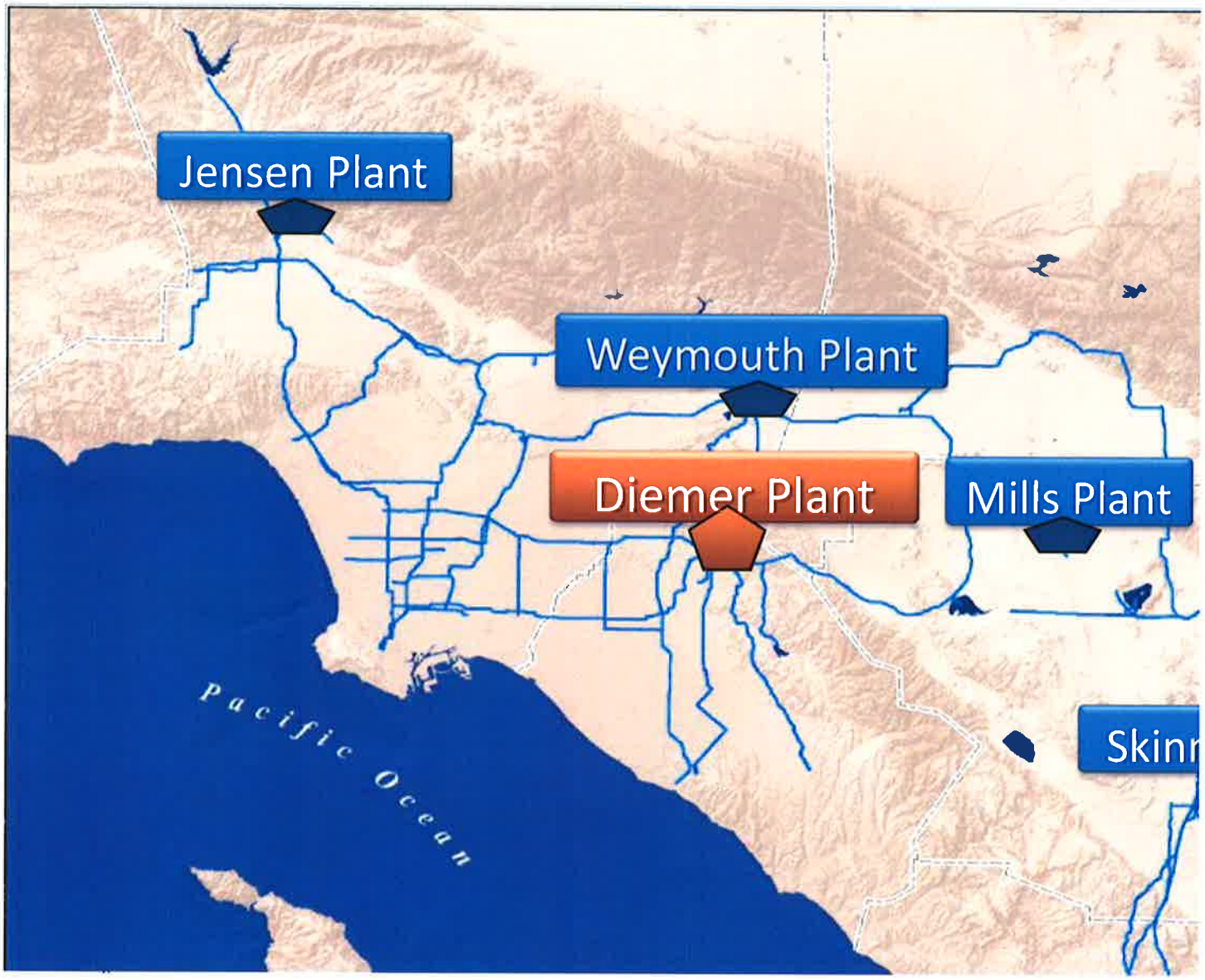
Attachment A

Attachment A – Project Photographs



Metropolitan Water District of Southern California - Distribution System

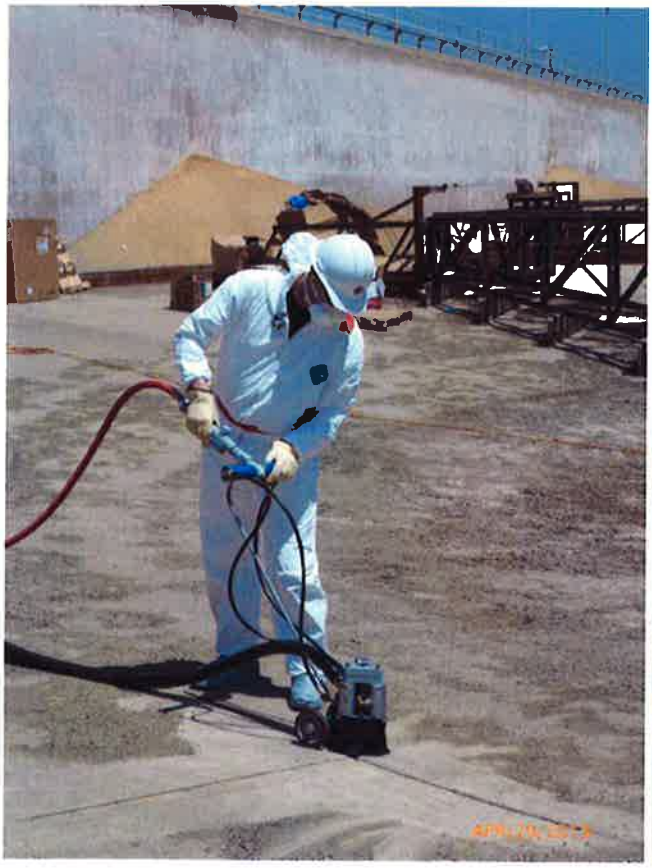
Diemer Water Treatment Plant – Aerial View

Diemer Basin No. 4 (Top - looking south; Bottom – looking east)


JUL/18/2012

Overview of Basin Joints

Typical Concrete Joints in Basins

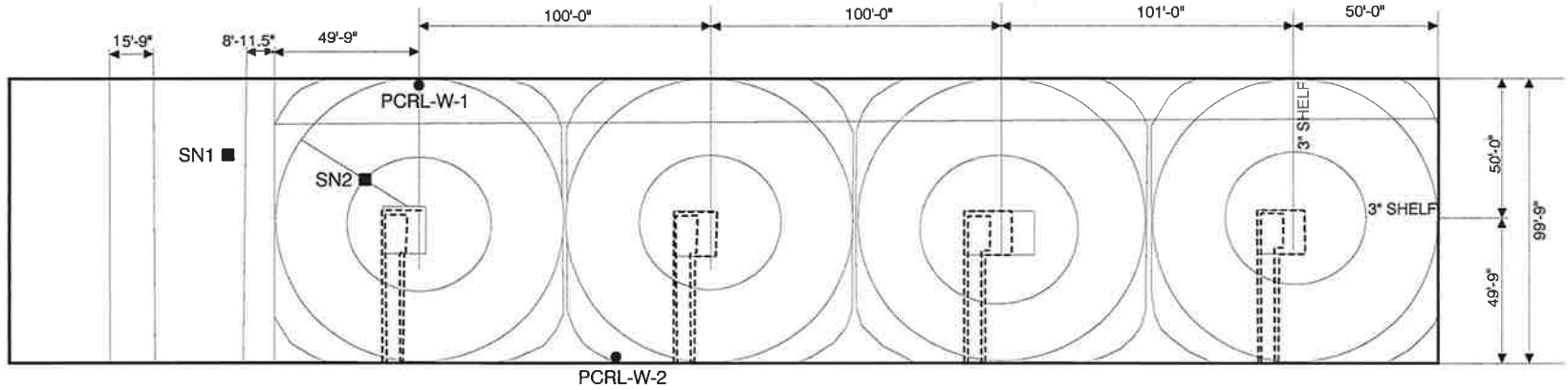


Testing of Dustless Concrete Removal Technology at Basin Joints (April 2013)

Floor Joints (left) & Wall Joints (right)

Attachment B

Diemer Basin 4
Floor Wipe/Core Comparison done at SN1 & SN2



LEGEND	
■ SN2	CONTAINMENT LOCATIONS
● PCRL-W-2	WIPE SAMPLE LOCATIONS OF PREVIOUSLY REMOVED CAULK MATERIAL

SCALE IN FEET
0 60 120

NOTE: DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

207541_A2.DWG ---- EBP

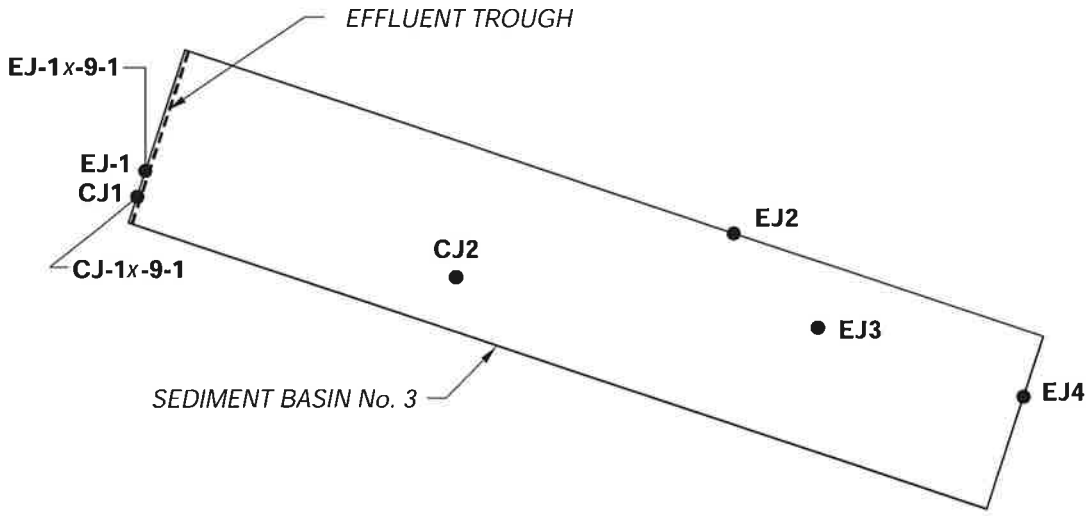
Ninyo & Moore		BASIN NO. 4 SITE PLAN	FIGURE
PROJECT NO.	DATE	ROBERT B. DIEMER WATER TREATMENT PLANT 3972 VALLEY VIEW AVENUE YORBA LINDA, CALIFORNIA	2
207541005	8/11		

TABLE 1 - ANALYTICAL RESULTS FOR BULK, WIPE, AND CONCRETE SAMPLES FOR PCBs

Sample ID	Description	Sample Type	Date Collected	PCBs by EPA Method 8082			Unit
				Aroclor 1242	Aroclor 1248	Aroclor 1260	
SN1-B-1	floor caulk sample	B	5/9/2011	13,000	ND	65	mg/kg
SN1-B-1E (duplicate of SN1-B-1)	floor caulk sample	B	5/9/2011	13,000	ND	86	mg/kg
SN1-W-A	wipe sample after raking	WA	5/9/2011	730	ND	4.9	µg/100 cm^2
SN1-W-B	wipe sample after 1st abrasive blasting	WB	5/10/2011	1,000	ND	8.9	µg/100 cm^2
SN1-W-C	wipe sample after 2nd abrasive blasting	WC	5/10/2011	3,000	ND	18	µg/100 cm^2
SN1-W-CE (duplicate of SN1-W-C)	wipe sample after 2nd abrasive blasting	WC	5/10/2011	2,700	ND	17	µg/100 cm^2
SN1-C-B	floor concrete bulk sample at 2.5"	C-2.5	5/10/2011	4.2	ND	0.089	mg/kg
SN1-C-BE (duplicate of SN1-C-B)	floor concrete bulk sample at 2.5"	C-2.5	5/10/2011	8.1	ND	0.073	mg/kg
SN1-C-C	floor concrete bulk sample at 5"	C-5	5/10/2011	0.34	ND	ND	mg/kg
SN2-B-1	floor caulk sample	B	5/10/2011	ND	3,700	ND	mg/kg
SN2-W-A	wipe sample after raking	WA	5/10/2011	ND	570	10	µg/100 cm^2
SN2-W-B	wipe sample after 1st abrasive blasting	WB	5/10/2011	ND	160	3.6	µg/100 cm^2
SN2-W-C	wipe sample after 2nd abrasive blasting	WC	5/10/2011	ND	110	1.7	µg/100 cm^2
SN2-C-B	floor concrete bulk sample at 2.5"	C-2.5	5/10/2011	ND	0.35	ND	mg/kg
SN2-C-C	floor concrete bulk sample at 5"	C-5	5/10/2011	ND	0.36	ND	mg/kg
PCRL-W-1	wall wipe sample	W-PRCL	5/10/2011	2.1	ND	ND	µg/100 cm^2
PCRL-W-2	wall wipe sample	W-PRCL	5/10/2011	1.2	ND	ND	µg/100 cm^2

Notes:
ID - identification
PCBs - polychlorinated biphenyls
EPA - Unites States Environmental Protection Agency
B - bulk sample of caulk material
WA - standard TSCA confirmation wipe sample after raking
WB - standard TSCA confirmation wipe sample after first round (initial) of abrasive blasting
WC - standard TSCA confirmation wipe sample after second round of abrasive blasting
C-2.5 - bulk concrete sample, drilled 2.5-inches from joint center line
C-5 - bulk concrete sample, drilled 5-inches from joint center line
W-PCRL - standard TSCA confirmation wipe sample of previously removed caulk areas
ND - not detected above practical quantitation limit
µg/100 cm^2 - micrograms per 100 centimeter square
mg/kg - milligram per kilogram

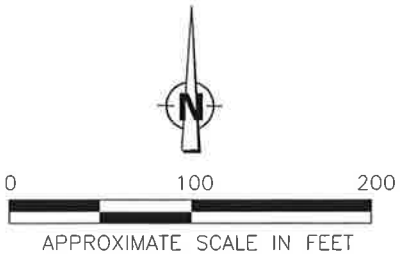
Jensen Basin 3
Wall Wipe/Core Comparison done at CJ1 & EJ1



LEGEND

CJ = CONSTRUCTION JOINT
EJ = EXPANSION JOINT

EJ1 AND CJ1	ON WALL ~3 FEET ABOVE SLAB
CJ2 AND EJ3	ON SLAB
EJ2	ON WALL ~10 FEET ABOVE SLAB
EJ4	ON WALL ~5 FEET ABOVE SLAB
EJ-1x-9-1	ON WALL ~5 FEET ABOVE SLAB
CJ-1x-9-1	ON WALL ~5 FEET ABOVE SLAB



NOTE: ALL DIMENSIONS, DIRECTIONS AND LOCATIONS ARE APPROXIMATE.

Ninyo & Moore

206412-A2.DWG

SAMPLE LOCATIONS

SEDIMENTATION BASIN No. 3
13100 BALBOA BOULEVARD
GRANADA HILLS, CALIFORNIA

PROJECT NO.	DATE	FIGURE
206412001	10/2005	2

TABLE 1 – SUMMARY OF LABORATORY RESULTS OF CONCRETE SAMPLES

Sample ID	PCB-1248 (µg/kg)	Sample Date	Drill Bit Diameter (inches)	Drilled Depth (inches)	Joint Type	Location Relative to Joint
CJ1-A	**740**	8/9/05	0.875	1*	CJ	In ground and blasted area
CJ1-B	**2,000**	8/9/05	0.875	2	CJ	In ground area
CJ1-B Retest	**2,200**	8/9/05	0.875	2	CJ	In ground area
CJ1-C	**340**	8/9/05	0.875	2	CJ	2.5 inches from joint
CJ1-D	**21,000**	8/9/05	0.875	2	CJ	5 inches from joint
CJ1-D Retest	**660**	8/9/05	0.875	2	CJ	5 inches from joint
CJ1-DUP	**740**	8/9/05	0.875	2	CJ	2.5 inches from joint
CJ2-B	ND < 100	8/9/05	0.875	2	CJ	In ground area
CJ2-C	ND < 100	8/9/05	0.875	0.5*	CJ	2.5 inches from joint
CJ2-D	ND < 100	8/9/05	0.875	2	CJ	5 inches from joint
EJ1-A	**540**	8/10/05	0.875	2	EJ	2.5 inches from joint
EJ1-B	**270**	8/10/05	0.875	2	EJ	5 inches from joint
EJ2-A	ND < 100	8/10/05	0.875	2	EJ	2.5 inches from joint
EJ2-B	ND < 100	8/10/05	0.875	2	EJ	5 inches from joint
EJ3-A	ND < 100	8/10/05	0.875	2	EJ	2.5 inches from joint
EJ3-B	ND < 100	8/10/05	0.875	2	EJ	5 inches from joint
EJ3-DUP	ND < 100	8/10/05	1	2	EJ	2.5 inches from joint
EJ4-A	ND < 100	8/10/05	1	2	EJ	In ground and blasted area
EJ4-B	ND < 100	8/10/05	1	2	EJ	In ground area
EJ4-C	ND < 100	8/10/05	1	2	EJ	2.5 inches from joint
EJ4-D	ND < 100	8/10/05	1	2	EJ	5 inches from joint
CJ-1A-9-1	**4,100**	9/1/05	0.75	2	CJ	In ground and blasted area
CJ-1B-9-1	**2,900**	9/1/05	0.75	2	CJ	In ground area
CJ-1C-9-1	**220**	9/1/05	1	2	CJ	2.5 inches from joint
CJ-1C-DUP-9-1	**220**	9/1/05	1	2	CJ	2.5 inches from joint
CJ-1D-9-1	**140**	9/1/05	1	2	CJ	5 inches from joint
EJ-1A-9-1	**840**	9/1/05	1	2	CJ	2.5 inches from joint
EJ-1B-9-1	**240**	9/1/05	1	2	CJ	5 inches from joint

Notes:
PCB – Polychlorinated biphenyl
PCB-1248 was the only PCB detected by EPA Method 8082
µg/kg – micrograms per kilgram
CJ – Construction joint
EJ – Expansion joint
ND < – Not detected at the concentration stated following "<"
*Measurement is approximate

TABLE 6 – SURFACE WIPE SAMPLE DATA

Sample ID	PCB-1248 (µg/100 cm^2)	Sample Date
Prepared in lab*	ND	9/27/05
CJ-1W1b	7.2	9/28/05
CJ-1W2b	6.8	9/28/05
EJ-1Wb	4.1	9/28/05
EJ-1WDUP	5.7	9/28/05
CJ-1W1a	8.5	9/28/05
CJ-1W2a	1.7	9/28/05
EJ-1Wa	3.1	9/28/05
EJ-1WDUPa	4.5	9/28/05

Notes:
PCB – Polychlorinated biphenyl
µg/100 cm^2 – micrograms per 100 square centimeters
b – Sample collected before high-pressure washing
a – Sample collected after high-pressure washing
*Travel blank

Attachment C

Attachment C

Diemer Plant - Recent Copy of Water Quality Results

SITELOC	PROJECT	ALIQUOT	SAMPLE_DATE	ANALYTE	RESULT	UNIT	RDL	SULT_STAT	PLE_COLLE	PH	TCLR
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1016	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1221	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1232	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1242	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1248	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1254	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	PCB-1260	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N48706-07-1	10-Jul-12	Total Polychlorinated Biphenyls	ND	ug/l	0.5	A	u07616	8.07	2.68
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1016	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1221	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1232	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1242	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1248	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1254	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	PCB-1260	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N50425-04-1	09-Oct-12	Total Polychlorinated Biphenyls	ND	ug/l	0.5	A	u07616	8.13	2.49
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1016	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1221	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1232	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1242	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1248	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1254	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	PCB-1260	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N52046-12-1	08-Jan-13	Total Polychlorinated Biphenyls	ND	ug/l	0.5	A	u07616		2.61
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1016	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1221	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1232	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1242	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1248	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1254	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	PCB-1260	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N53747-07-1	09-Apr-13	Total Polychlorinated Biphenyls	ND	ug/l	0.5	A	u07616	8.02	2.7
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1016	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1221	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1232	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1242	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1248	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1254	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	PCB-1260	ND	ug/l	0.5	A	u07616		2.62
DFPEFF	Basin	N55560-07-1	09-Jul-13	Total Polychlorinated Biphenyls	ND	ug/l	0.5	A	u07616		2.62

SITELOC	PROJECT	ALIQUOT	SAMPLE_DATE	ANALYTE	RESULT	UNIT	RDL
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1016	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1221	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1232	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1242	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1248	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1254	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	PCB-1260	ND	ug/l	0.5
DFPEFF	Plant Basin Sealant Monitoring	N57378-12-1	08-Oct-13	Total	ND	ug/l	0.5

Attachment D

Attachment D (4/2008)

Risk Assessment

Extraction Testing of PCB from Affected Concrete Joints

To assess the mobility of residual PCBs remaining after caulk removal, Metropolitan conducted an extensive series of tests as part of the Jensen Basin No. 3 project. Metropolitan's leachability test data, developed in cooperation with EPA, in fact demonstrates that PCBs do not leach and are tightly bound within the sealant/concrete matrix.

First, shortly after the discovery of PCB in the Jensen sealant, four concrete pulverized samples containing up to 5 mg/kg PCB were analyzed for PCBs using the U.S. EPA Toxicity Characteristic Leaching Procedure (TCLP) and showed results that were all non-detect at a 10 ug/l Reporting Limit (see Attachment D1 for copies of the laboratory analyses).

Second, additional testing of sealant-affected concrete was performed in January 2007 in accordance with EPA's suggestion that we conduct non-destructive leaching of sealant-impacted concrete core ("solid core") samples, extrapolate the leaching results to an entire basin, and then determine the incremental human health risk. The laboratory results are shown in Table 1, along with the residual PCB levels in the pulverized concrete cores ("drill cores") collected adjacent to the solid cores. All of the leaching tests measured no detectable PCBs at a reporting limit of 0.20 ug/L, using concrete PCB levels as high as 22 ppm; absent detectable PCB levels, the detection limits were instead used as the basis for the extrapolation.

The solid core leaching results were then applied to an overall basin (Jensen dimensions being typical), using the known concrete surface area exposed to sealant (475 sf) and maximum water retention time (48 hours). The projected maximum PCB concentration in basin was calculated to be 0.00045 ug/L. The extrapolation calculations are shown in Attachment D2.

Table 1:
Comparison of Joint Concrete PCB Leachate with Adjacent PCB Levels

Sample ID	Pulverized Concrete		Concrete Core Leachate		Comments
	Depth (inches)	Total PCB (ppm)	Total PCB (ug/L)	% of Leaching Surface Coated**	
CJ1-A	1	0.74	ND	80	
CJ1-B	2	2	ND	50	Core retested @ 2.2 ppm
CJ1-C	2	0.34	ND	0	
CJ1-D	2	21	ND	80	Core location resampled @ 0.66 ppm
CJI-DUP	2	0.74	ND	95	Duplicate of CJ1-C
CJ-1B-9-1	2	2.9	ND	99	
CJ-1C-DUP-9-1	2	0.22	ND	75	
EJ1-A	2	0.54	ND	2	

*ND=Non-detect @ 0.20 ug/L
**Sides of solid cores were coated completely. Ends were partially coated, with % of surface coated shown

Risk to Water Consumers

Using the historical effluent testing results and the recent leachability findings, several levels of risk evaluation were performed to determine the incremental human health risk posed to Metropolitan customers by the presence of residual PCB in the Jensen Basin concrete joints.

First, an evaluation of the risk posed by drinking water at the MCL and at TCLP concentrations was performed. The primary exposure pathway for residual PCBs will be through consumption of drinking water held in the retention basins.

EPA Region 9 has developed preliminary remediation goals for PCBs in tap water. From these risk-based concentrations, the cancer risks for drinking water exposure at the MCL and at TCLP concentrations were calculated (Attachment D3). The risks ranged from 5E-07 (lowest risk and persistence PCB mixtures) to 1E-5 (highest risk and persistence PCB mixtures). The excess cancer risk at the assumed concrete TCLP concentration of 5 ug/L (half of the detection limit) is 2E-06 to 5E-05, does not exceed EPA's risk management range, and is therefore protective of human health. The results are also considered very conservative, since any residual PCB exposed to water would be tightly bound in the concrete matrix.

Second, the leachability testing results were used as input to the same risk assessment calculation as before (see Attachment D4), the excess cancer risk was determined to be 9E-8, which again does not exceed EPA's risk management range, and is protective of human health.

Note that the second risk assessment was performed using leaching data from exposed sealant-affected concrete taken from Jensen Basin. In practice, any joints from which sealant is removed will be resealed with new joint sealant that will encapsulate any residual PCB remaining in the concrete joints. The assumptions built into the risk assessment, as well as the risk assessment results themselves, are therefore very conservative.

Note also that the solid core leaching test did not detect any PCB in the leachate. The solid core-based risk assessment calculations therefore used the analytical reporting levels from the leaching study rather than actual reported PCB leaching findings; the actual risk to human health will therefore be lower than calculated.

As an additional preemptive measure, the water within Jensen Basin will be monitored monthly for PCBs whenever PCBs are known or believed to remain above 1 mg/kg in concrete. Discharge concentrations above the EPA's maximum contaminant limit (MCL) of 0.5 ppb will trigger an investigation of the cause for the excursion and possible further remedial action.

Weck Laboratories, Inc.
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Report Date: Friday, December 16, 2005
Received Date: Friday, September 2, 2005
Received Time: 3:00 pm
Turnaround Time: 5 days

Client: Metropolitan Water District - LA
700 North Alameda Street
Los Angeles, CA 90054-0153

Phone: (213) 217-6671
FAX: (213) 576-5269

Attn: Carol Kaufman

Project: 206412001

P.O.#:

Supplement To Certificate of Analysis

This is a Supplement to the Certificate of Analysis document issued previously for the above indicated project

Work Order No: 5090224-08 **Sample ID:** CJ-1A-9-1 **Matrix:** TCLP
Sampled by: JDA **Sampled:** 09/01/05 11:47 **Sample Note:**

Analyte	Result	Qualifier	Units	Reporting Limit	Dilution	Method	Prepared	Analyzed		Batch
Soluble PCB-1016 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1221 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1232 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1242 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1248 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1254 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1260 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Surrogate: Decachlorobiphenyl		*O-05*	*58.2 %*	*47-148*			*12/09/05 10:39*	12/13/05 10:30	sm	
Surrogate: Tetrachloro-meta-xylene		*O-05*	*55.5 %*	*38-129*			*12/09/05 10:39*	12/13/05 10:30	sm	

Work Order No: 5090224-09 **Sample ID:** CJ-1B-9-1 **Matrix:** TCLP
Sampled by: JDA **Sampled:** 09/01/05 11:30 **Sample Note:**

Analyte	Result	Qualifier	Units	Reporting Limit	Dilution	Method	Prepared	Analyzed		Batch
Soluble PCB-1016 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1221 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1232 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1242 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1248 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1254 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1260 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Surrogate: Decachlorobiphenyl		*O-05*	*58.2 %*	*47-148*			*12/09/05 10:39*	12/13/05 10:30	sm	
Surrogate: Tetrachloro-meta-xylene		*O-05*	*52.0 %*	*38-129*			*12/09/05 10:39*	12/13/05 10:30	sm	

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Quality Control Report
Weck Laboratories, Inc

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Batch W512276 - EPA 3510C									
Blank (W512276-BLK1)					Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		*5.16*		ug/l	*5.00*	*103*	*37-148*		
Surrogate: Tetrachloro-meta-xylene		*5.08*		ug/l	*5.00*	*102*	*38-129*		
Soluble PCB-1016 on TCLP Extract	ND			ug/l					
Soluble PCB-1221 on TCLP Extract	ND			ug/l					
Soluble PCB-1232 on TCLP Extract	ND			ug/l					
Soluble PCB-1242 on TCLP Extract	ND			ug/l					
Soluble PCB-1248 on TCLP Extract	ND			ug/l					
Soluble PCB-1254 on TCLP Extract	ND			ug/l					
Soluble PCB-1260 on TCLP Extract	ND			ug/l					
LCS (W512276-BS1)					Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		*5.26*		ug/l	*5.00*	*105*	*37-148*		
Surrogate: Tetrachloro-meta-xylene		*4.86*		ug/l	*5.00*	*97.2*	*38-129*		
Soluble PCB-1016 on TCLP Extract	47.5			ug/l	50.0	95.0	50-130		
Soluble PCB-1260 on TCLP Extract	45.5			ug/l	50.0	91.0	64-131		
Matrix Spike (W512276-MS1)		**Source: 5090224-08**			Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		*10.5*		ug/l	*10.0*	*105*	*37-148*		
Surrogate: Tetrachloro-meta-xylene		*9.40*		ug/l	*10.0*	*94.0*	*38-129*		
Soluble PCB-1016 on TCLP Extract	ND	129		ug/l	100	129	68-133		
Soluble PCB-1260 on TCLP Extract	ND	92.5		ug/l	100	92.5	59-133		
Matrix Spike Dup (W512276-MSD1)		**Source: 5090224-08**			Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		*10.6*		ug/l	*10.0*	*106*	*37-148*		
Surrogate: Tetrachloro-meta-xylene		*9.78*		ug/l	*10.0*	*97.8*	*38-129*		
Soluble PCB-1016 on TCLP Extract	ND	130		ug/l	100	130	68-133	0.772	25
Soluble PCB-1260 on TCLP Extract	ND	93.6		ug/l	100	93.6	59-133	1.18	25

Case Narrative:

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Quality Control Report

Authorized Signature

Contact: Alfredo Pierri (Lab Director)

ELAP # 1132
LACSD # 10143
NELAC # 04229CA

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Notes
The Chain of Custody document is part of the analytical report
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance
All results are expressed on wet weight basis unless otherwise specified
ND=Not detected, below the reporting limit
Sub=Subcontracted analysis, original report enclosed.
An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL)
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MIS002

Flags for Data Qualifiers
Q-05 = This sample was extracted outside of the EPA recommended holding time

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Weck Laboratories, Inc.
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Report Date: Friday, December 16, 2005
Received Date: Tuesday, August 9, 2005
Received Time: 6:45 pm

Turnaround Time: 5 days

Client: Metropolitan Water District - LA
700 North Alameda Street
Los Angeles, CA 90054-0153

Phone: (213) 217-6671
FAX: (213) 576-5269

Attn: Carol Kaufman

Project: MWD

P.O.#:

Supplement To Certificate of Analysis

This is a Supplement to the Certificate of Analysis document issued previously for the above indicated project

Work Order No: 5081003-12 **Sample ID:** CJ1- B **Matrix:** TCLP
Sampled by: Client **Sampled:** 08/09/05 15:10 **Sample Note:** Concrete powder

Analyte	Result	Qualifier	Units	Reporting Limit	Dilution	Method	Prepared	Analyzed		Batch
Soluble PCB-1016 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1221 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1232 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1242 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1248 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1254 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Soluble PCB-1260 on TCLP Extract	ND	O-05	ug/l	10	1	EPA 8082	12/09/05 10:39	12/13/05 10:30	sm	W512276
Surrogate: Decachlorobiphenyl		*O-05*	*50.5 %*	*37-138*			*12/09/05 10:39*	*12/13/05 10:30*	*sm*	
Surrogate: Tetrachloro-meta-xylene		*O-05*	*54.5 %*	*56-139*			*12/09/05 10:39*	*12/13/05 10:30*	*sm*	

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Quality Control Report
Weck Laboratories, Inc

Polychlorinated Biphenyls by EPA Method 8082 - Quality Control

Analyte	Sample Result	QC Result	Qualifier	Units	Spike Level	%REC	%REC Limits	RPD	RPD Limit
Batch W512276 - EPA 3510C									
Blank (W512276-BLK1)					Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		5.16		ug/l	5.00	103	37-148		
Surrogate: Tetrachloro-meta-xylene		5.04		ug/l	5.00	101	58-129		
Soluble PCB-1016 on TCLP Extract	ND			ug/l					
Soluble PCB-1221 on TCLP Extract	ND			ug/l					
Soluble PCB-1232 on TCLP Extract	ND			ug/l					
Soluble PCB-1242 on TCLP Extract	ND			ug/l					
Soluble PCB-1248 on TCLP Extract	ND			ug/l					
Soluble PCB-1254 on TCLP Extract	ND			ug/l					
Soluble PCB-1260 on TCLP Extract	ND			ug/l					
LCS (W512276-BS1)					Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		5.26		ug/l	5.00	105	37-148		
Surrogate: Tetrachloro-meta-xylene		4.86		ug/l	5.00	97.2	58-129		
Soluble PCB-1016 on TCLP Extract	47.5			ug/l	50.0	95.0	59-130		
Soluble PCB-1260 on TCLP Extract	45.5			ug/l	50.0	91.0	64-131		
Matrix Spike (W512276-MS1)		**Source: 5090224-08**			Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		10.5		ug/l	10.0	105	37-148		
Surrogate: Tetrachloro-meta-xylene		9.46		ug/l	10.0	91.0	58-129		
Soluble PCB-1016 on TCLP Extract	ND	129		ug/l	100	129	68-133		
Soluble PCB-1260 on TCLP Extract	ND	92.5		ug/l	100	92.5	59-133		
Matrix Spike Dup (W512276-MSD1)		**Source: 5090224-08**			Prepared: 12/09/05 Analyzed: 12/12/05				
Surrogate: Decachlorobiphenyl		10.6		ug/l	10.0	106	37-148		
Surrogate: Tetrachloro-meta-xylene		9.58		ug/l	10.0	95.8	58-129		
Soluble PCB-1016 on TCLP Extract	ND	130		ug/l	100	130	68-133	0.772	25
Soluble PCB-1260 on TCLP Extract	ND	93.6		ug/l	100	93.6	59-133	1.18	25

Case Narrative:
Samples C11-B and C11-D were re-extracted and analyzed at a later date. The results are presented as samples 5081003-10 and 5081003-11 respectively. Although sample C11-B showed a very similar result than the initial analysis, sample C11-D had a very different one, this was attributed to un-uniformity in the sample.

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Weck Laboratories, Inc.
Environmental and Analytical Services - Since 1964

Quality Control Report

Authorized Signature

Contact: Alfredo Pierri (Lab Director)

ELAP # 1132
LACSD # 10143
NELAC # 04229CA

The results in this report apply to the samples analyzed in accordance with the chain of custody document. Weck Laboratories certifies that the test results meet all requirements of NELAC unless noted in the Case Narrative. This analytical report must be reproduced in its entirety.

Notes
The Chain of Custody document is part of the analytical report
Any remaining sample(s) for testing will be disposed of one month from the final report date unless other arrangements are made in advance
All results are expressed on wet weight basis unless otherwise specified.
ND=Not detected, below the reporting limit.
Sub=Subcontracted analysis, original report enclosed
An Absence of Total Coliform meets the drinking water standards as established by the State of California Department of Health Services
The Reporting Limit (RL) is referenced as laboratory's Practical Quantitation Limit (PQL).
For Potable water analysis, the Reporting Limit (RL) is referenced as Detection Limit for reporting purposes (DLRs) defined by EPA

If sample collected by Weck Laboratories, sampled in accordance to lab SOP MS002

Flags for Data Qualifiers
Q-05 – This sample was extracted outside of the EPA recommended holding time

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Attachment D2

Extrapolation of Solid Core Leaching Results to Entire Basin

Parameters

- Concrete cores are 2 inches in diameter (3.14 sq in end area)
- Core ends coated from 0% to 99%*
- Total basin sealant joint length of 5,370 ft
- Total basin sealant depth into joint of 0.375 in
- Basin volume of 680,056 cu ft (503 x 104 x 13 ft), or 19,259,183 L

Leach Rate Calculation

- All results showed <0.2 ug/L PCB leached into 2 L of water over 48 hours
- For solid core with 0% coating (i.e. end entirely exposed), <0.4 ug PCB leached from 3.14 sq in of exposed surface, or 0.127 ug/sq in
- The overall surface area of impacted concrete after all sealant is removed is 5,370 ft by 1.06 in, or 68,306 sq in
- For the basin, the leach rate would be 8,674 ug over 2 days

Projected PCB Concentration Calculation

- Assume water is stored in basin for 2 days maximum
- Up to 8674 ug could be leached into 19,259,183 L of water, for a maximum concentration of 0.00045 ug/L

Sensitivity Analysis

- Instead use core with 90% of end coated. Exposed area would be 10% of that assumed above, meaning the leach rate is 10 times higher, or 0.0045 ug/L
- Assume 90% coating as above, and allow water to reside in basin for 2 weeks, meaning above concentration would be 7 times higher, or 0.031 ug/L

Other Factors to Consider

- Concrete will actually be recoated with new sealant after PCB sealant removal, so leaching would be minimal, if any.
- Leach rate would decline rapidly over time as surface PCBs are removed, and diffusion in and out of the concrete pores controls leaching.

*Note that some of the solid core ends were partially coated with sealant before leaching; the approximate amount of coating/exposed concrete was estimated. For this calculation, the core with the most exposed surface was used.

Attachment D3

Risk Assessment Calculations at the PCB MCL and TCLP Levels

PCB-containing sealant is being removed from drinking water retention basins owned by the Metropolitan Water District of Southern California. Presently, the sealant has a TCLP concentration of 37 ug/L. After removal, the PCB TCLP concentrations will be less than the detection limit (10 ug/L). The primary exposure pathway for residual PCBs will be through consumption of drinking water held in the retention basins. The water within the basins will be monitored for PCBs; concentrations above the EPA's maximum contaminant level of 0.5 ppb will trigger further remedial action.

An evaluation of the risk posed by drinking water at the MCL and at TCLP concentrations was performed. EPA Region 9 has developed preliminary remediation goals for PCBs in tap water. From these risk-based concentrations, the cancer risks for drinking water exposure at the MCL and at TCLP concentrations were calculated. The risks ranged from 5E-07 (lowest risk and persistence PCB mixtures) to 1E-5 (highest risk and persistence PCB mixtures), as shown in Table F-1. The cancer risk at the sealant TCLP concentration ranged from 4E-05 to 1E-03, which exceeds EPA's risk management range of 1E-04 to 1E-06. However, after removal, this risk range will be reduced to 5E-06 to 1E-04, and will not exceed EPA's risk management range.

Table F-1
Drinking Water Risks at the Maximum Contaminant Level (MCL) and at TCLP Concentrations

CONTAMINANT	EPA Region 9 TAP WATER PRGs						Cancer Risk @ MCL	Cancer Risk @ TCLP	
	Cancer Risk = 1E-06			Chronic HQ = 1					
	water-inhale (ug/l)	water-ingest (ug/l)	combined (ug/l)	water-inhale (ug/l)	water-ingest (ug/l)	combined (ug/l)		Sealant	1/2 DL*
Polychlorinated biphenyls (PCBs) (ug/L)							0.5	37	5
PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016)	--	0.96	0.96	--	2.6	2.6	5E-07	4E-05	5E-06
PCBs (unspeciated mixture, high risk, e.g. Aroclor 1254)	--	0.034	0.034	--	0.73	0.73	1E-05	1E-03	1E-04

Cancer Risk @ MCL = (MCL * 1E-06) / Region 9 Tap Water PRG

Cancer Risk @ TCLP = (TCLP * 1E-06) / Region 9 Tap Water PRG

* = TCLP data was non-detection at 10 ug/L (after sealant removal)

Attachment D4

Risk Assessment Calculations based on Extrapolated Solid Core Leaching Results

PCB-containing sealant has been removed from drinking water retention basins owned by the Metropolitan Water District of Southern California. Recent leaching tests using concrete cores has determined that the maximum potential PCB concentration in water would be between 0.00045 ug/L and 0.0031 ug/L once the basins are put back into service.

The primary exposure pathway for residual PCBs will be through consumption of drinking water held in the retention basins. An evaluation of the risk posed by drinking water at the MCL and at concentrations measured in the basin water was performed. EPA Region 9 has developed preliminary remediation goals for PCBs in tap water. From these risk-based concentrations, the cancer risks for drinking water exposure at the MCL and at the measured water concentrations were calculated. At the MCL, the risks ranged from 5E-07 (lowest risk and persistence PCB mixtures) to 1E-5 (highest risk and persistence PCB mixtures), as shown in Table G-1. The cancer risk at basin water concentrations ranged from 5E-10 to 9E-08, which does not exceed EPA's risk management range.

Table G-1
Drinking Water Risks at the Maximum Contaminant Level (MCL) and at Measured Water Concentrations from Leaching Tests

CONTAMINANT	EPA Region 9 TAP WATER PRGs						Cancer Risk @ MCL	Cancer Risk @ Measured Water Concentration	
	Cancer Risk = 1E-06			Chronic HQ = 1					
	water+inhale (ug/l)	water-ingest (ug/l)	combined (ug/l)	water+inhale (ug/l)	water-ingest (ug/l)	combined (ug/l)		Sample 1 ug/L	Sample 2 ug/L
Polychlorinated biphenyls (PCBs) (ug/L)							0.5	0.00045	0.0031
PCBs (unspeciated mixture, low risk, e.g. Aroclor 1016)	--	0.96	0.96	--	2.6	2.6	5E-07	5E-10	3E-09
PCBs (unspeciated mixture, high risk, e.g. Aroclor 1254)	--	0.034	0.034	--	0.73	0.73	1E-05	1E-09	9E-08

Cancer Risk @ MCL = (MCL * 1E-06) / Region 9 Tap Water PRG

Cancer Risk @ Measured Water Sample Concentration = (Sample concentration * 1E-06) / Region 9 Tap Water PRG